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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/822,054	04/08/2004	Richard Montgomery	42P15278	2097

8791 7590 06/30/2006

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EXAMINER
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CHERVINSKY, BORIS LEO

ART UNIT	PAPER NUMBER
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2835

DATE MAILED: 06/30/2006

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**BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES**

Application Number: 10/822,054  
Filing Date: April 08, 2004  
Appellant(s): MONTGOMERY ET AL.

**MAILED**

JUN 3 0 2006

**GROUP 2800**

Paul E. Steiner, Reg. No. 41,326  
For Appellant

**EXAMINER'S ANSWER**

This is in response to the appeal brief filed 05/30/06 appealing from the Office action mailed 02/01/06.

**(1) Real Party in Interest**

A statement identifying by name the real party in interest is contained in the brief.

**(2) Related Appeals and Interferences**

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

**(3) Status of Claims**

The statement of the status of claims contained in the brief is correct.

**(4) Status of Amendments After Final**

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

**(5) Summary of Claimed Subject Matter**

The summary of claimed subject matter contained in the brief is correct.

**(6) Grounds of Rejection to be Reviewed on Appeal**

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

**(7) Claims Appendix**

The copy of the appealed claims contained in the Appendix to the brief is correct.

**(8) Evidence Relied Upon**

6,796,370	Doll	9-2004
5,412,536	Anderson et al.	5-1995

**(9) Grounds of Rejection**

The following ground(s) of rejection are applicable to the appealed claims:

1. Claims 1-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Doll in view of Anderson et al.

Doll discloses a system, comprising: an electronic component 17, and a cold plate 24 thermally coupled to the electronic component 17, the cold plate 24 comprising: an enclosure having a fluid inlet 48 and a fluid outlet 50 in fluid communication with the fluid inlet 48, the fluid inlet 48 and the fluid outlet 50 are co-located since they are in the same plane (claims 6, 12, 18); a channel structure inside the enclosure between the inlet and the outlet defining a plurality of radial flow paths (see Fig's. 8, 9, 10); the enclosure comprises a lid member 20 and a base member 22, and wherein the channel structure comprises: a plurality of cooling fins 52 disposed between the lid member 20 and the base member 22, the fins defining a set of channel walls which form radial flow paths from an impingement point 65 radially outward to a perimeter of the enclosure which is centrally located, the channel walls provide a high fluid channel aspect ratio since they form narrow fluid channels (claims 5, 11, 17). The method steps of claims 7-9 are necessitated by the device structure as disclosed by Doll.

Doll discloses the claimed invention except having the impingement point for cooling fluid in the enclosure located at the position corresponding to an expected hottest spot. Anderson discloses liquid cooling arrangement having liquid coolant impinged on the hottest spot (col. 6, lines 16-19). It would have been obvious at the time the invention was made to a person having ordinary skill in the art to impinge the cooling liquid

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corresponding to the hottest location of the heat source as disclosed by Anderson et al. for the device disclosed by Doll for efficient cooling. Doll also is silent regarding a tubing loop connecting the cold plate with a pump and a heat dissipation device including fan. The instant application disclosure indicates that such system is known (see specification Page 3) and several prior art references listed in US PTO Form 892, which are not applied at this time, disclose such a system, therefore it would be obvious to a person having ordinary skill in the art to use it with the device disclosed by Doll.

#### **(10) Response to Argument**

Appellant's arguments with respect to claims 1, 7 and 13 that Anderson does not teach the impingement point for cooling fluid is corresponding to a hotter spot on the heat generating component is not persuasive because Anderson in fact teaches a point D where coolant is impinged onto surface of the IC chip 210 and where coolant changes its state from liquid to vapor (col. 3, lines 65-68) or where most heat is absorbed by coolant. Point D represents local and apparently hottest point on the surface of the IC chip. The cited portion of the Anderson's reference stating: "...the present invention may also be used to cool local heat flux regions requiring an inert coolant such as mirrors used in high power laser applications". Emphasis added, see col. 6, lines 16-19. The local heat flux regions as disclosed by Anderson represent the hotter spots of the heat-generating device such as IC chip. Anderson just indicating that the invention may be used for many other applications where local heat flux regions must be cooled, but nowhere suggests that the entire mirror represents high local heat flux region. It also

known that mirrors for high power lasers are heated unevenly or have hotter spots that should be cooled.

With respect to claims 4, 10 and 16, Doll discloses the impingement point offset from the center as shown in Fig. 3 and Fig. 5.

With respect to claims 5, 11 and 17, the examiner's position is that the fluid channels aspect ratio is sufficiently high as shown by Doll, and as Appellant acknowledges, is about 2:1, since, the specification does not provide the range in which the aspect ratio should be considered as high.

With respect to claims 6, 12 and 18, the instant application does not provide clear definition of the term "co-located" with respect to the fluid inlet and fluid outlet, therefore it can be reasonably broadly interpreted as being located in the same plane as it is indicated in the examiner's rejection.

For the reasons stated above, it is believed that the rejections should be sustained.

**(11) Related Proceeding(s) Appendix**

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

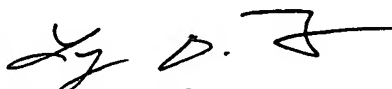
Respectfully submitted,

Boris L. Chervinsky, Primary Examiner



Conferees:

Lynn D. Field, Supervisory Patent Examiner



Darren E. Schuberg, Supervisory Patent Examiner

